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ABSTRACT

Because test scores reflect not only a student's knowledge in a given area, but also his or her familiarity with cues present in the test, and because tests are so prevalent and important in schools, there is a great need to teach test wiseness skills. It is ethical to do so if no material from the final test is included. Certain principles and strategies of test taking which can be taught include time management, error-avoidance, guessing strategies, and deductive reasoning skills. Test wise people will look for flaws in test construction to improve their scores. Determining the relationship between subject matter and the difficulty of neighboring items can also be taught. The strategies can be applied to multiple-choice and true-false tests as well as essay tests. Test makers are aware that test taking skills are being taught and can manipulate and lure the individual taking the test to select an incorrect answer. There is no substitute, therefore, for direct knowledge. (HFG)

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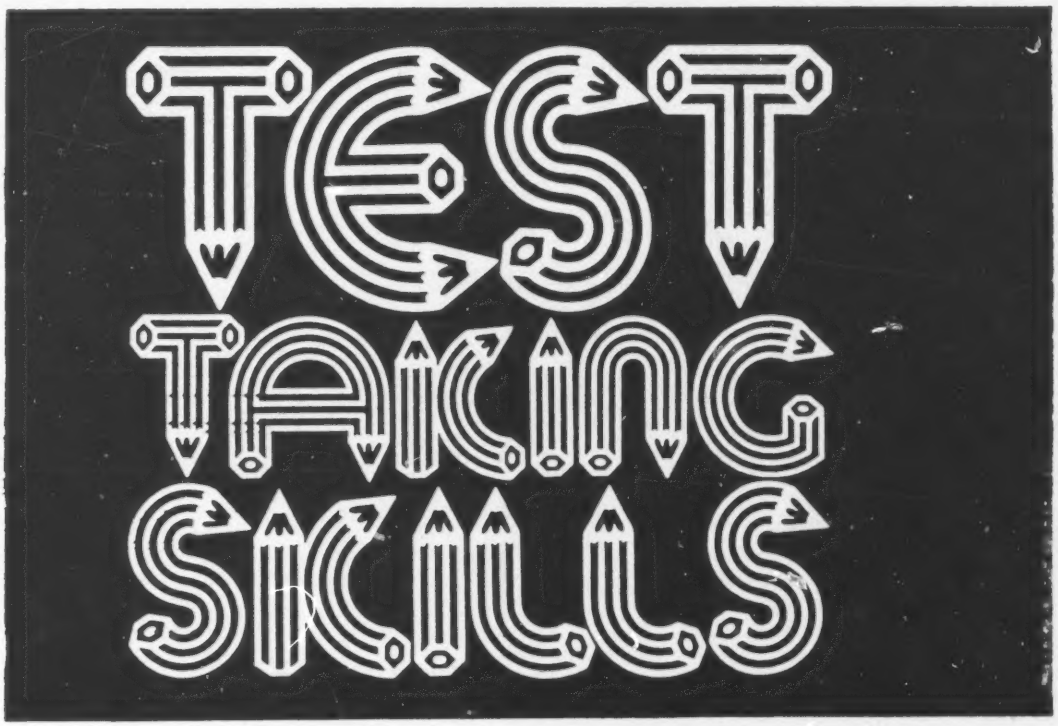

Incorporating Them into the Curriculum

by Art Phillips

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SOUTHERN OREGON

RESEARCH AND DEVELOPMENT COMMITTEE

presents:

TEST TAKING SKILLS: INCORPORATING THEM INTO THE CURRICULUM

---

by

ART PHILLIPS

May 1983

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TABLE OF CONTENTS

Foreword by SORD v

Introduction vii

Why Teach Test Wiseness? 1

Ethical Considerations: Proper and Improper Practices with Standardized Tests 3

Outline of Test Wiseness Principles 6

Discussion of Research on Suggested Programs 9

Other Research Findings and Miscellaneous Concerns 15

Instruments Used to Determine Test Wiseness Abilities . . 18

A Sample Test Wiseness Program 19

A Sample Curriculum 22

Examples of High School Programs 24

Ashland Senior High School 24

Medford Senior High School 24

Sprague High School (Salem) 26

Available Materials 28

Bibliography 31

A C K N O W L E D G M E N T S

Many teachers and administrators in Oregon, especially in Jackson and Josephine Counties, contributed valuable information about their approach to incorporating test taking skills into the curriculum.

Review and evaluation of rough drafts of the project by several individuals provided valuable assistance to the author.

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FOREWORD BY SORD

SOUTHERN OREGON RESEARCH AND DEVELOPMENT COMMITTEE (SORD) received a request in Spring, 1982, from the Superintendents Association of Jackson and Josephine Counties to "focus on standardized testing, with particular emphasis on academic achievement." A formidable task! . . . one which Research Committee members wrestled with over the summer months.

Some of the concerns of the committee focused on ethical considerations. Is it ethical, for example, to "coach" students prior to testing? At what point does "coaching" violate the purposes and uses of the test? Other concerns centered on products of committee research: Should workshops be held? Would written material, if produced, be used by teachers, counselors, principals, and administrators making decisions about district testing programs?

A multi-level approach resulted. A seminar early in the 1982-1983 school year brought a testing consultant to the region to address the uses and abuses of standardized tests, and to discuss methods of instructing students in areas of test taking skills. SORD then contracted one of its members, Art Phillips, to research the topic of test taking skills and produce two kinds of instructional materials--leaflets to go to every teacher and administrator in the two-county region, and a pamphlet which would offer ideas for incorporating test taking skills into the curriculum.

The SORD Research Committee, in the process just described, came to believe that the instruction of test taking skills can be a sound educational practice if it is handled ethically. Preparing students to enter into a test taking situation with confidence is a legitimate objective of any teacher, regardless of the nature of the test being administered. This conviction is reflected in the ideas contained in this pamphlet.

Art Phillips, the educator chosen to complete research and develop materials, was selected by SORD because of his many professional contributions to the region. His service encompasses teaching, supervising student teachers and practicing teachers, administering curriculum planning and implementation, facilitating regional educational projects, and serving productively on several major state committees and boards. His respect for the teaching profession manifests itself in every activity he participates in, and his attitudes and practices have earned the admiration of his colleagues throughout the state.

Readers of this pamphlet may be assured that Art Phillips considers STUDENT NEEDS first and foremost. He offers practical suggestions for incorporating test taking skills into the curriculum for the specific purpose of preparing students mentally and psychologically for the experience. When students have received instruction based on careful and ethical procedures, educators can feel secure that they have given students every possible opportunity to succeed in a test taking situation.

SORD is a program offered by Jackson Education Service District, Medford, Oregon. Its members are drawn from local districts, private schools, and post-secondary institutions in southern Oregon.

TEST TAKING SKILLS: INCORPORATING THEM INTO THE CURRICULUM

INTRODUCTION

Students in today's schools face repeated sessions of standardized testing as they move through public and private school systems. From reading readiness tests through high school SATs, student promotions and program opportunities are primarily controlled by the results of tests. Because of the importance that is placed on test results, educators have the responsibility of insuring that scores reflect as accurately as possible the knowledge actually possessed by students. Students should not be penalized unnecessarily by receiving lower scores because they do not understand the test taking process.

The prevalence of testing in schools, which often culminates in minimum competency testing as a graduation requirement, has caused educators to ask important questions about test taking:

> What are the test taking skills most needed by students?
>
> How can such skills be effectively taught?
>
> How can test taking skills be incorporated into the curriculum?
>
> Will teaching test taking skills, "test wiseness," actually improve test scores?
>
> Is teaching students to be "test wise" ethical?

Test wiseness has a relatively short history. Millman, Bishop, and Ebel published the first theoretical work in 1965. Their definition:

> Test-wiseness is defined as a subject's capacity to utilize the characteristics and formats of the test and/or the test taking situation to receive a high score. Test-wiseness is logically independent of the examinee's knowledge of the subject matter for which items are supposedly measures. . . it will be restricted to the actual taking of (not preparing for) objective achievement and aptitude tests.

The most recent contribution of Millman, Bishop, and Ebel is their taxonomy of test wiseness, a list of principles students should apply in taking tests.

Wahlstrom and Boersma in 1965 found that eighth grade students exposed to a programmed text dealing with test wiseness had significantly higher scores on the verbal reading test of the

DIFFERENTIAL APTITUDE TEST than did students who did not have access to the text.

Within the last decade test wiseness has received considerable attention in professional literature. Not only has it been examined as a source of additional variance in test scores, but test wiseness has also been investigated in terms of its components (Nilsson and Wedman), correlates (Diamond and Evans), teachability (Oakland), and application (Lord). As a result of these and other empirical analyses, test wiseness is widely recognized as a possible variable in test results, as well as a determining factor in raising test scores.

Research has proven that test wiseness spans the widest age range possible. At one end of the spectrum are preschool children, and at the other end, adults. Gaines and Jongsma in 1974 postulated that test wiseness could be taught to preschoolers. Studies by Ardiff, Callenbach, Diamond, and Evans, Gaines and Jongsma, Kreit and Nilsson, have exhibited the ability of elementary students to improve test scores when a systematic curriculum of test wiseness principles is taught.

Crehan, Gross, Slakter, et al, Wahlstrom and Boersma, Gaier, Pyrczak and Sax, and Carr demonstrated that junior and senior high students could also be successfully taught test taking skills.

CHAPTER I

WHY TEACH TEST WISENESS?

One of the reasons educators should be aware of test wiseness training is the need to improve the validity of test results. Much research in test wiseness has focused on the "cue using strategy." This strategy presupposes the existence of flaws in the construction of test items, e.g., leads (item stems) based on incomplete statements, specific determiners that tend to appear in the correct answer alternate, grammatical inconsistencies between the lead and alternatives, or a correct alternative that is longer than any of the incorrect alternatives. Research by Davis, Cronbach, Metfessel and Sax, and McMorris have demonstrated that these flaws reduce the validity of test scores and make test items easier.

There are only two ways to avoid bias against students who have not learned to respond successfully to item-writing faults. The first is to construct tests that are free of writing faults (not likely to happen). The second is to teach all students a cue-using strategy in order that all groups have the same basic knowledge.

Ebel, in his research, states:

> If the test is a good measure of achievement, one which tests command of knowledge, and if it is free of technical flaws, more error in measurement is likely to occur from students who have too little, rather than too much, skill in taking tests.

McPhail states:

> Teachers should identify students who are not test wise and teach them to take tests. Otherwise, the validity of these students' scores is impaired. For example, if students do not know how to allot their time during a timed test, their scores will not reflect their true abilities.

Preston, Tuinman, and Keetz have demonstrated that some students score better than chance in some reading tests when answering questions without reading the related passage.

Pyrczak and Tuinman worked extensively to formulate a process to improve test items so that the chance possibilities are decreased. However, since not all tests are likely to become perfect overnight, educators can reduce the problem by equalizing students' ability to make use of inadvertent cues.

Even more critical is teaching students how the structure of a test provides a frame of reference for selecting answers. Teachers can alert students to specific wording that is a cue to a certain type of test question, and can show students definite steps for solving additional test items.

A second reason for teaching test wiseness is to provide equal education, employment, and promotion opportunities for minorities. Most minority students score lower on achievement and aptitude tests than students at large. Scores of culturally disadvantaged students, including children in areas of Jackson and Josephine Counties, also tend to be lower.

Limited attention has been focused on the role of test wiseness in test performance of minority students. In Diamond's study of 76 fifth and sixth grade inner city children, he identified that these students knew the cues of answer length and of association between the item stem and certain answer options. However, no significant relationship was found between knowledge of these cues and standardized reading test scores. Some attempts to teach minority students test taking skills have mixed results. Harris, McPhail, and Oakland in their teaching and research demonstrated several patterns of improvement in test wiseness. On the other hand, Oppenheim concludes that short-term "coaching" for the SAT is not successful. Most other researchers, however, point out flaws in his methodology of teaching test wiseness.

Informal reports from classroom teachers who systematically teach test wiseness have been encouraging. This informal data, together with empirical data on teaching test taking skills to minority students, suggest that such students can be taught to be test wise.

Research results appear to demonstrate that students' test taking behavior does improve as they become more test wise. A systematic program for teaching test taking skills thus seems necessary to provide Jackson and Josephine County students an equal opportunity to do well on tests which are nationally normed.

CHAPTER II

ETHICAL CONSIDERATIONS: PROPER AND IMPROPER

PRACTICES WITH STANDARDIZED TESTS

Ethical considerations in teaching children to take tests are concerns to many educators. Subsection 6, Section C of the Ethical Standards of the American Personnel and Guidance Association, Falls Creek, Virginia, states:

> The meaningfulness of test results used in personnel, guidance, and counseling functions generally depends on the examinee's unfamiliarity with the specific items on the test. Any coaching or dissemination of test material can invalidate the test results. Therefore, test security is one of the professional obligations of the members. Conditions that produce most favorable test results should be made known to the examinee. (1981)

The two most significant inferences that might be drawn from the above seem to be:

> No test wiseness program should include material from the actual tests to be taken by students, and
>
> Counselors and teachers have an ethical obligation to communicate to students those aspects of the testing situation that will lead to optimum performance.

The following guidelines are summarized from a paper by Anton Thompson, Ph.D., who at the time the paper was developed served as Director of Research, Long Beach Unified School District. Dr. Thompson proposes that:

It is acceptable and proper to. . .

> Inform students some days in advance that they are to take a standardized test.
>
> Explain to students, well before the day a standardized test is given, something about the purposes and general form of the test.
>
> Familiarize students with the mechanics of a standardized achievement test before the actual testing begins, through the use of practice exercises.
>
> Provide teachers with general infromation concerning achievement tests that have been scheduled for use.
>
> Continue to teach (for a teacher whose course of study recommends the development of a given learning) the recommended material even though the test to be given contains specific questions relating to that particular

skill, information, or understanding.

Try to bring about optimum motivation of the students for taking a standardized test.

Pass around and discuss a sample well-marked answer sheet.

Guard the material well before, during, and following the actual giving of the test.

Combine two or three class sections in one large testing group.

Make instructional use of the results of an item-analysis immediately following a test.

Study the results of an item-analysis as one kind of evidence that may be used in determining whether a school system's curriculum is sufficiently comprehensive and well balanced.

Return a student's scored achievement test booklet or answer sheet to the student for use in class discussion or in individual conference.

Some unacceptable and improper practices: It is NOT acceptable and proper to. . .

Coach students on the subject matter of a specific standardized test.

Use a standardized achievement test as abbreviated course of study.

Make a collection of various standardized tests for the purpose of lifting items for use in a "teacher-made" test.

Develop instructional materials which include a few specific items from a standardized test that is to be given even though the materials also include other content not taken directly from the test.

Use the report of a previous item-analysis as a "pony" for getting other students ready for that test.

Use a particular standardized test as a model for the construction of an elaborate set of drill exercises that parallel the content and format of that test.

Give one form of a standardized test a few days or weeks before a second form of the test is to be given as a district-wide survey.

Exclude a regular student from taking a district-wide test on the grounds that he is believed to be a poor learner or because he is said to "get all fouled up" when he takes a test.

Exclude a whole section of the class from taking a district-wide survey on the grounds that they are members of a low-ability group.

Accept or promote a general attitude of "Don't be fussy about methods so long as they raise the test scores."

Neglect in any way the instruction of the weakest students and/or the strongest students in a group in order to concentrate more effort on raising the median score of that group.

Alter the time limits for a standardized test.

Give students any help beyond that allowed by the test manual.

Give special assistance to poor readers by reading test items aloud.

Make individual students over-anxious and tense concerning the outcome of a standardized achievement test, nor set impossible goals for a class.

Foster a spirit of personal rivalry among teachers or between schools concerning test scores.

Be a spreader of rumors concerning improper testing practices allegedly taking place in other classrooms, schools, or school systems.

CHAPTER III

OUTLINE OF TEST WISENESS PRINCIPLES

The work of Millman, et al, provides this outline of test wiseness principles:

I. Elements independent of test construction or test purposes

A. Time using strategy

1. Begin work as rapidly as possible.

2. Work so that you are assured a high degree of accuracy.

3. Set up a time schedule so that you feel you will finish the test.

4. If necessary, guess at items. Be sure all questions are answered.

5. Use remainder of test time to check answers.

B. Error-avoidance strategy

1. Pay careful attention to all directions.

2. Identify the task to be completed.

3. Decide what kind of a response is wanted.

4. Ask examiner for clarification when necessary.

5. Check all answers for accuracy of answer and for correct placement on answer sheet.

C. Guessing strategy

1. Always guess, even if there is a penalty for wrong answers, unless the penalty is severe. (Few tests penalize for a wrong answer).

D. Deductive reasoning strategy

1. Eliminate options which are known to be incorrect and choose from among the remaining options.

2. Choose neither or both of two options which imply the correctness of one or the other.

3. Conversely, choose neither or both of two statements, one of which, if correct, would imply the incorrectness of the other.

4. Restrict the choice to those options which encompass all or two or more given statements known to be correct.

5. Utilize relevant content information in other test items and options.

II. Elements dependent upon test construction or purpose

A. Intent consideration strategy

1. Interpret questions in view of the emphasis of test construction or in view of the test purpose. (This requires that the teacher have knowledge of the test maker's philosophy. This writer suggests that inservice be provided to all persons who administer tests so they understand the test. Frequently such persons are unaware of the true purposes and philosophy of the tests they administer).

B. Cue-using strategy

1. Recognize and make use of any consistent patterns of the test constructor which distinguish the correct answer from incorrect options.

a. The test writer makes the correct answer longer or shorter than the incorrect options.

b. He qualifies it more carefully or makes it represent a higher degree of generalization.

c. He includes more true or false statements.

d. He places it in certain physical positions such as in the middle of all the choices.

e. He includes it among similar statements.

f. He makes it one of diametrically opposite statements.

g. He uses a specific phraseology.

2. Consider the relevancy of specific detail.

3. Recognize and make use of specific determiners. (If the last word in the stem ends with "a," then the test taker knows the answer must begin with a consonant).

4. Look for resemblances between the possible answer and the stem.

5. Consider the subject matter and difficulty of previous and subsequent test items.

Two possible ways of teaching the above concepts are associative learning and problem solving. Associative learning means learning from being told and from practice and drill. Test taking skills can be mastered effectively through associative learning. In a problem solving approach, students search for patterns. Test takers are presented with evidence and are then asked to investigate the data and draw conclusions. Problem solving approaches, of course, are based on the ability of students to process associative learning techniques which must be learned prior to teaching the problem solving approach.

An example of a "test making" activity developed by McPhail in 1978 to teach problem solving includes several stages:

STAGE 1: Read each passage. Then read each question about the passage. You are to find the best answer to each question. Place an "X" mark in the box before the option containing the most complete or most accurate answer. (Work in small groups).

STAGE 2: Read each passage. Then read each question about the passage. For each question, make up four statements. One statement should be the most complete or most accurate answer to the question. A second statement should be close to the most complete or most accurate answer to the question. Place an "X" mark in the box before the option containing the most complete or most accurate answer. (Work in small groups).

STAGE 3: Make a reading comprehension test based on each of the following passages. Compose ten questions (stems) with four options (statements) each. Two questions each should be based on the following five comprehension skills: Main Idea; Supporting Details; Vocabulary in Context; Inference; and Drawing a Conclusion. Place an "X" mark in the box before the option containing the most complete or most accurate answer. (Work in small groups).

STAGE 4: Rewrite the following questions and/or statements so that the correct answer is signaled by test wiseness cues. Utilize each of the following test wiseness cues at least once in rewriting questions and/or statements: ASSOCIATION between stem and alternative; the use of SPECIFIC DETERMINERS in the distractors; the use of CORRECT ALTERNATIVES which are longer and in some cases more specific than the other distractors; and the use of GRAMMATICAL CLUES in the stem. (Work in small groups).

CHAPTER IV

DISCUSSION OF RESEARCH ON SUGGESTED PROGRAMS

The principles suggested in the previous chapter are based on a conceptual framework developed through a synthesis of literature on test construction principles and problem solving styles of examinees. The fact that test wiseness encompasses both the method of measurement (the test taking situation) and characteristics of examinees (states, traits, etc.), compounds the difficulty of proving the reliability of any test wiseness program.

Strategies suggested earlier for tests which restrict time for answering questions should be considered guidelines for optimal time management. The time using strategies listed in Chapter III are intended to prevent a loss of points for reasons other than lack of knowledge of test content.

Error-avoidance strategies cited in the previous chapter might be considered "rules of thumb" to avoid minor mistakes, so the examinee is not penalized for carelessness. Most "how to" books include sections on these factors of test wiseness. The most obvious skill, but also one of the most important, is that examinees check to see that they are marking the correct response on the answer sheet.

The third area of test wiseness mentioned in Chapter III, guessing strategies, is unlike the first two. Guessing techniques allow the test taker to gain points beyond those attained on the basis of knowledge of subject matter addressed in the test. Although some test theorists advocate use of "do not guess" directions (Lord) in order to achieve standardized conditions for responding, others (Millman, et al) note that if examinees wish to improve their test scores, use of an appropriate guessing strategy is a means of doing so.

The advantage of guessing, if right answers only are scored, should be obvious. In this situation, the examinee is not penalized for an incorrect guess. For example, in a four-alternative multiple choice item, a random guess is expected to earn one quarter point. This method of guessing, therefore, means that the examinee should always hazard a guess.

If the test being taken has a "correction for guessing" formula, the examinee should also select an answer, since, in most cases, an item guessed at incorrectly has a greater expected value (the value after the correction for guessing is applied) than one omitted completely. (Millman, et al).

In experimentation by Slakter, test takers who employed conservative guessing strategies received lower test scores on objective tests, regardless of the type of scoring formula used. Slakter concluded that a more liberial use of guessing should be made, especially by the low risk test takers who appear to be the most penalized by instructions not to guess. Bauer's research

indicates that in non-multiple choice questions, the strategy of guessing can be detrimental, but in multiple choice type questions, guessing should be tried.

If examinees are well versed in reasoning strategies, they may eliminate one or more of the options as incorrect. Elimination of any option naturally increases the probability that the answer selected will be the correct one. Even with a correction for guessing, the expected value of an item after various other options have been eliminated, is greater than zero (Millman). Therefore, test takers should guess whenever they possess partial information on a test item. Ebel found that pure blind guessing on objective tests is rare. He contends that test takers have at least partial insight into the correct answer and should therefore always guess, even when a correction formula is used. Examinees need to know when it is profitable to guess and when it is not. Research (Ebel, Slakter) seems to indicate that the test wise individual is the examinee who is aware that higher test scores are achieved by employing a liberal guessing strategy.

Deductive reasoning, another strategy which should be used in test taking, also allows examinees to acquire points beyond those achieved through direct knowledge of the subject matter. However, it should be emphasized that deductive reasoning is based on acquired knowledge which then allows the examinee to make logical deductions.

An example of deductive reasoning being used in a test taking situation is cited by Gibb. Making logical deductions from "absurd options" might be:

> The capital city of New York is:
>
> a. Buffalo
> b. Albany
> c. Illinois
> d. Rochester
>
> Option c. is not consistent with the stem since it is not a city, and therefore is not a viable answer. The examinee has now increased the chance of being correct to one in three.

The area of "absurd options" has been researched widely and is included in almost all measures of test taking skills. (Bajtelsmit, Millman, Slakter, Koehler and Hampton, Woodley, Crehan, Setijadi).

Another deductive reasoning strategy calls for the elimination of two options that express the same fact, since they imply each other's incorrectness. If only one of four alternatives is the keyed answer, and two of the options are the "same," then both must be incorrect and can be eliminated. This principle is referred to as "similar options" or "similar meanings" and is illustrated in the following example:

The square root of 16 is:

a. 2
b. 8/4
c. 4
d. 8

Options a. and b. are the same, so they can be eliminated. The answer must be 4 or 8, so the chance of guessing correctly has been raised to 50%.

Research has demonstrated that knowledge of both "absurd options" and "similar meanings" occurs as low as the fifth grade. Research also indicates that students or adults do not automatically learn these strategies. Thus, in order for test takers to benefit from these skills, the skills must be taught. The concept of "similar options" is more difficult to teach than "absurd options"; however, it appears that training in recognition of both areas would be effective.

A third deductive reasoning skill deals with options that are opposite in meaning. Langer, in his research, implies that when two options are opposite in meaning, one of them will be correct. However, Millman's research indicates that a third option may be the correct response. In general, in an item with two options opposite in meaning, the examinee can safely eliminate one of the options, but cannot select both options, since the correctness of one implies the incorrectness of the other.

A fourth deductive reasoning principle is one in which the examinee is encouraged to select an option which encompasses all other options known to be correct. This has been referred to as an "umbrella term." Umbrella terms may explicitly state which options are included for consideration (e.g., "all of the above"), or they may imply the inclusion of other options that are inherently contained in the meaning of the umbrella term (e.g., the option "trigonometric functions" encompasses the options of "sine," "cosine," and "tangent").

A final deductive reasoning category employs the use of content information in other items as cues in selecting a correct answer. Gibb calls this strategy "give away" because the answer is given in another test item. Even though such items rarely appear in tests, test takers should be alert to the possibility that they may, indeed, show up in some tests.

The intent of the test writer and the purposes of a test are sometimes important to the examinee and should therefore be included in any systematic curriculum directed toward improving test taking skills. The test taker may profit from knowledge of a particular test writer's idiosyncracies, or from past experiences dealing with tests which had similar purposes. Thorough knowledge and analysis of tests by teachers is a prerequisite to helping students. Examinees must defer to the style of the test constructor in order to achieve optimum test results. Millman, et al, noted, however, that the examinee should revert to use of these

cues only when direct knowledge and deductive reasoning do not lead to an answer. Skills related to this particular area are probably the most difficult to acquire and are the least reliable in achieving benefits in test taking.

Another skill which test wise people will employ to improve scores is to look for flaws in test construction. One flaw may be detected in examining the length of correct options in a test. A particular test constructor may, for example, consistently make the correct answer either longer or shorter than other alternatives. Langer, et al, believes that relative length of an option is an element test wise examinees should look for. Many programs for teaching test wiseness include this skill as important in improving test scores (Gibb, Millman, Dunn, Goldstein). These researchers found that subjects achieved higher scores on items from the BASIC MILITARY SUBJECTS TESTS when keyed options were longer than the incorrect options. Some research indicates that the response needs to be three times the length of other options before students recognize this cue. A good test taking skills program will make students aware of this strategy.

The degree of qualification is a vital part of a test wiseness program. Some research (Langer, et al) suggests that the most general alternative is usually the correct answer. The opposite, however, may be true. In many test items the test maker is unable to express the correct answer concisely. As a result, in order to assure that the answer is recognizable as correct, the test constructor is forced to make the answer either overqualified, overgeneralized, or more wordy than other options.

A third flaw in many tests points to the inclusion of more true (or false) statements than their opposite. This same flaw is often evident in multiple choice questions, as some test makers consistently express the correct option in positive terms, while making the distractors negative. This tendency of the writers often makes correct answers structurally and semantically different than all the distractors.

Much research has been completed which deals with the position of the correct answer in a sequence of alternatives. Gronlund, Gustav, Langer, Metfessel, and Sax evaluated a number of standardized tests for possible biases in the keying of correct answers. Of the tests studied, 42% exhibited such biases, with the tendency to place the correct answer at the center of the response distribution occurring most frequently.

Further research indicates that in tests deliberately written with a positional bias, students do not become aware of this cue. Failure to recognize the positional biases in these studies may indicate a lack of general test wiseness in the subjects tested. Hopkins and Hopkins point out that specific positional response biases are not universally recognized by examinees.

Another very sophisticated cue-giving device is that of looking for the relationship between the correct answer and a distractor opposite in meaning. This option for cueing answers is suggested

only for those taking highly technical tests.

Other deficiencies of tests should be considered in any test wiseness program. Tests may include, for example:

> Overuse of the same terms. This characteristic appears often in teacher-made tests. Specific words which were often used in lessons taught tend to appear in tests.
>
> Inconsistencies in grammar between the stem and the keyed answer. The unskilled test constructor will use appropriate grammar in composing the stem and the keyed option, but will fail to do so when writing the distractors (i.e., use of such words as "among" and "between").
>
> Relevance of specific detail in an item. In this instance, the initial part of the stem is correct, but the test maker has added additional details which are intentionally included as distractors, designed to mask the correctness of the option. The examinee must determine if the additions to the original stem make the item incorrect.
>
> The use of specific determiners, as "never" or "always." Generally, such determiners overqualify an option, thereby indicating its incorrectness. However, some test makers deliberately use such words to confuse the test taker, so caution should be used in making decisions too quickly. Research indicates that students on their own do not recognize this cue-giving strategy until the ninth grade. Failure to employ this strategy certainly gives substance to the argument that this skill should be one of those taught in an elementary school program to develop test wiseness.

One final strategy that needs to be incorporated into any test taking skills program is that of determining the relationship between the subject matter and the difficulty of neighboring items. Researchers point out that a specific item may be embedded in a series of items dealing with similar subject matter. If this is the case, the test taker is advised to search these adjacent items for clues to the correct answer. Test makers either place the most difficult items at the end of the test, or intersperse them throughout the test. If the latter is true, then test takers should use their time accordingly--answering the easy questions first, working through the test quickly, then returning to the more difficult items. Research indicates that test results are not negatively influenced by the location of difficult items if the examinee completes the test.

Most of the strategies discussed in research to date have involved improving scores on objective tests which involve multiple choice or true-false answers. Many of the skills mentioned, however, can be applied to essay tests. Certainly time using and error-avoidance techniques are applicable to subjective tests. Knowledge of the

test maker's intent and idiosyncracies in test making and grading will aid the examinee regardless of question format.

Some risks are involved in teaching test taking skills. Many test makers are becoming "wise" to test wiseness strategies and will use them as bait, intending to lure the test wise individual into selecting an incorrect alternative. An important guideline to remember in developing and implementing any test taking skills program is that such skills cannot be used as a substitute for direct knowledge. All the cues described should be used only after the examinee has been unsuccessful in applying knowledge and reasoning in trying to ascertain the correct answer.

CHAPTER V

OTHER RESEARCH FINDINGS AND MISCELLANEOUS CONCERNS

Teacher made tests administered to large numbers of students may be susceptible to ordering of answers so that they are easier to grade.

In ANALOGY tests the examinee needs to use general information on colons, use and positioning of colons, and specific analogy techniques as cues. Subjects who were instructed in the use of colons improved their test scores.

Disadvantaged children who are aware of test wiseness concepts taking perceptual, cognitive, and psychomotor abilities tests, have much higher scores than those with little or no knowledge of test wiseness.

Drilling disadvantaged students on a number of test wiseness related tasks such as right, left, up, down, etc., produces significantly higher scores on the METROPOLITAN READING READINESS TEST than scores earned by students who received no training. (Oakland).

The more test taking experiences an examinee has, the greater improvement in his/her scores. Such findings indicate that those who take an achievement test once or twice a year will score higher than those taking an achievement test only once every two or three years. Research indicates, however, that some students do not improve by merely taking additional tests.

Test wiseness skills will be eroded due to a time lapse between tests. Woodley and others' work with adults revealed a remarkable regression in knowledge of test taking skills in relation to the knowledge they had while in high school.

Poor sentence structure and difficult vocabulary may cause test takers to focus on the poor sentence structure and difficult vocabulary rather than on the correct answer. Test takers should not be distracted by these elements, but should be trained to look beyond these factors.

Teacher made tests rarely determine the exhibition of test wiseness clues, test reliability, validity, item difficulty and discrimination. Once an item is written, rarely is it evaluated for its effectiveness in measuring the criteria. (This author has had experience working with about 35 teachers--judged excellent by supervisors, superintendents, and college professors--in developing test items for possible inclusion in tests to be published by American Guidance Services. After field testing teacher items for test reliability, validity, and item difficulty, few items were found acceptable).

Research on such tests as the METROPOLITAN READING TEST, CALIFORNIA TEST OF BASIC SKILLS, METROPOLITAN ACHIEVEMENT TEST, STANFORD READING TEST, and the IOWA BASIC SKILLS, shows that answers to many items can be influenced by a knowledge of test taking skills. Researchers in this study were not looking for specific item flaws, but instead employed components listed under the time-using, error-avoidance, and reasoning strategies of the taxonomy of test wiseness. Research indicates that performance on these tests is affected by the "general" aspects of test wiseness, and knowledge of test wiseness is a pervasive factor affecting different tests in a variety of ways.

Research (Gaines, Jongsma, Oakland, Ardiff, Callenbach, Diamond , Evans, Kreit, Nilsson, Crehan, Gross, Slakter, Wahlstrom, Boersma, Gaier, Pryczak, Sax, Carr, and Woodley) has proven that test wiseness is evident in all age groups from pre-school through adulthood. Oakland demonstrates that pre-school students can be taught test taking skills and that their scores can be affected positively.

Two theoretical approaches appear evident in research: the first considers test wiseness as an additional source of variance in test scores. Here test wiseness is evaluated for its effects on test scores, reliability, and validity. The second labels test wiseness as a lasting and persistent trait of the examinee. Concern here is not with psychometric characteristics of tests, but with an individual's ability to employ test wiseness skills. The first theory asserts that test wiseness exists due to faulty test construction. The second interpretation holds that it is a persistent attribute of the individual test taker. Logically, test wiseness encompasses some of both theories.

Since test wiseness is defined as a cognitive skill, it was at first thought to have a high correlation with intelligence. Research (Diamond and Evans) cites moderate, positive correlations with intelligence, but certainly not as high as might be expected. In Ardiff's work, assessing relationships between test wiseness, reading ability, and intelligence in third and sixth graders, low positive correlations were obtained. Other researchers have obtained correlations of zero between intelligence and test wiseness abilities. The general conclusion therefore seems to be that test wiseness and intelligence are, at best, only moderately correlated.

Some relationship between test wiseness and test anxiety may exist. Students with a high anxiety level tend to use fewer test wiseness cues. This finding should be important to teachers. However, Jacobs postulates that anxiety may be an affective component of test wiseness.

Slakter, et al, examined the relationship between test wiseness, grade level, and sex. They found that although the sex of the examinee is not related to test wiseness abilities, grade level is.

One researcher found that black students received higher IQ scores when tested by a black examiner than when tested by a white

examiner. While this research does not deal directly with test taking skills and the examiner, it further illustrates how test scores can be influenced by other than knowledge or intelligence.

CHAPTER VI

INSTRUMENTS USED TO DETERMINE

TEST WISENESS ABILITIES

Several instruments have been constructed in order to assess individuals' test wiseness abilities. The original test wiseness measure was produced by Gibb in 1964. His test measured the seven secondary cues of:

1. Stem option
2. Absurd relationships
3. Specific determiners
4. Precise options
5. Longer length options
6. Grammatical cues
7. Item give aways

Millman constructed four tests to measure test wiseness abilities in high school and college students. In order to rule out the possibility that correct answers may be obtained by an examinee's knowledge of the subject matter, the item content employed was either very obscure or very familiar. Millman carried on a highly complex, but reliable, procedure in establishing validity in his tests. His results, judged by other test designers, indicated that the differences in examinees was due to differece in test wiseness ability. These tests are not now used, since the test wiseness measures failed to accurately measure the criterion.

Slakter in 1970 constructed a test to measure test wiseness in grades five through eleven. Reliability tests showed a .63 reliability quotient indicating that the test was "reasonably reliable" for grades nine through eleven. The format and similar approaches to Slakter's test are being used presently in most test wiseness programs. "The final results of test makers has proven that test wiseness is independent of subject matter, and may be reliably measured in populations of various ages." (Sarnacki).

CHAPTER VII

A SAMPLE TEST WISENESS PROGRAM

The following outline proposes a curriculum for teaching test wiseness to students. Appropriate grade levels are indicated in parentheses.

I. Developing Familiarity with the Test (Pre-12)

A. Introduce purpose of the test

B. Introduce testing materials

1. Pencil (marker)

2. Answer sheets

C. Discuss listening to directions

D. Practice

1. Completing requested information

2. Working in columns and rows

3. Filling in responses

4. Asking for information

E. Make a list of concepts that are not fully understood

II. Developing Familiarity with Test (Pre-12)

A. Review and define concepts that children may not understand: opposite, most, like, same, usual, left, right, down, up, similar

B. Explore those concepts as they relate to test

1. Directions

2. Test questions

C. Review Unit I

III. Answering Test Items (4 - 12)

A. Detail items--ask for specific information (e.g., Who discovered America?)

1. Scan to find probable answer

2. Eliminate choices that are definitely wrong

3. Select answer

4. Check

B. Main idea or context questions (ask students to select main idea from paragraph (e.g., In the paragraph you just read, the sea captain intended to. . .)

1. Look for corresponding ideas, words, thoughts

2. Eliminate incorrect answers

3. Select choice

4. Check

C. Inference questions (ask students to draw conclusions, e.g., What is the main idea? or What can you conclude from the information given?)

1. Read carefully

2. Determine section that contains facts on which conclusion is based

3. Eliminate incorrect answers

4. Select best answer

5. Check

D. Help students learn to recognize and answer those kinds of questions by practicing them. Select items from old tests.

1. Read item

2. Children identify type

3. Verbalize answer selection process

E. Guessing

1. Explain guessing strategies

a. Eliminate all incorrect answers

b. Choose one from best

2. Explain correction for guessing formula if used on test

IV. Efficient Time Use (K - 12)

A. What to do if you do not know an answer

1. Omit or guess on items you don't know

2. Do not spend a long time on any one question

3. If you have time, come back later and work on any questions you omitted

4. Look over the test when you have finished to make sure that you have marked all the answers

5. Make the marks on the answer sheet as quickly as possible

V. Teaching Deductive Reasoning Strategies (5-12)

A. Use sample tests or a planned test program to teach the following:

1. Eliminating options you know are incorrect

2. Checking to see if one answer, if correct, would imply the incorrectness of the other item. This can eliminate one answer. The more answers you eliminate, the better chance you have of identifying the correct one

3. Rapidly defining the problem (question), analyzing and evaluating the different possible solutions

4. Watching for key words or terms, and looking very closely for any qualifying conditions or statements. Look especially for words and phrases such as "usually, commonly, in most instances, never, not one of these," etc.

5. Studying the stem of the question. It will often give clues to the correct answer

6. Looking at other similar questions. They may give clues to the correct answer

7. Checking all math problems carefully

8. On essay questions, watching for such words as "compare, contrast, discuss, evaluate, analyze, define, or describe"

VI. Giving Portions of a Practice Test(K-12)

A. Assess difficulties, and reteach.

CHAPTER VIII

A SAMPLE CURRICULUM

(PROGRAM PREPARED FOR GRADES 8 - 12)

The following suggestions are taken from SETTING UP YOUR OWN "ACT PREP WORKSHOP," by Jerry Bobrow, Executive Director, Educational Test Preparation Services, Northridge, California. Only general categories are shown here; the entire leaflet which incorporates many ideas is available from:

Cliffs Notes, Inc.
P. O. Box 80728
Lincoln, Nebraska 68501
Phone (402) 477-6971

These components are listed as important to an ACT PREP WORKSHOP:

Course Materials

Selection of Instructors

Practice Tests

Facilities

Scheduling Classes

Organization of the course should include:

I. Introduction

II. Structure and Format of the Test

III. General Strategies

IV. Short Review of Basic Skills (arithmetic, algebra)

V. Analysis of Math Sections

VI. Practice Test

VII. Correction and Analysis

VIII. English Usage

IX. Social Studies Reading

X. Natural Sciences Reading

XI. Math Again

XII. Final Preparation

XIII. Evaluation

A MODEL FIVE-MEETING WORKSHOP

(The author indicates that the model five-meeting course of 2 to 2 1/2 hours each might be modified to four, six, or seven sessions, according to individual school's needs or limitations).

Meeting 1: Introduction/Math

Meeting 2: English Usage

Meeting 3: Social Studies Reading

Meeting 4: Natural Sciences Reading

Meeting 5: Math

CHAPTER IX

EXAMPLES OF HIGH SCHOOL COURSES

ASHLAND SENIOR HIGH

In a college prep situation, Don Vondracek, English Department, helps students prepare for the SAT. In the time allocated for developing an understanding of what the test is and what it does, he emphasizes that diligent application to the skills will pay off because the test is NOT a measure of innate ability.

Most of the instructional time is spent on analogies, guessing strategies, general vocabulary development, and these TSWE items: subject-verb agreement, pronoun case, parallelism, and modifier problems. Sample test sections are administered under time pressure.

The following sources are used in helping students prepare for the SAT:

PRACTICE FOR SCHOLASTIC APTITUDE TESTS (Arco Publications) This material is good for the analogy section and also contains a 1,600 word vocabulary list.

HOW TO BEAT THE SAT (Donner, Workman Publications) This resource is a total games approach to the test, and is useful for its guessing strategies.

4SATS (College Entrance Board and Educational Testing Service) This booklet contains four tests actually given in the past.

THE MISMEASUREMENT OF MAN (Steven Jay Gould) This book offers an enlightening and sobering look at how tests have been used.

Don Vondracek believes the verbal section does not lend itself to short-term coaching as well as the math section.

MEDFORD SENIOR HIGH

Dan Farrell, Dean at Medford Senior High, teaches a mini-course for SAT preparation. Scheduled for two forty minute periods, the course is offered at two different times--first and last periods of the day, usually a few days prior to the testing session. About one-third to one-half of students who take the SAT participate in the mini-course.

Dan, who started the course several years ago as a job target, finds that it fills a definite need at Medford High. He has therefore continued to conduct the classes as one of his professional responsibilities.

Some important aspects of Medford's course are summarized in comments by Dan--Vocabulary: "If it's Greek, skip it." Timing: "Time is the critical element." Math: "Find the 'speedy' methodology." Purpose of the test: "If you want to go to Stanford, it IS important." Getting ready for the test: "Panic precludes looking at words critically." Medford students, he believes, profit from the mini-course. He notices that students on math teams usually do exceptionally well on that portion of the test, probably because they have practice in making quick decisions on problems. A weakness seems to be that students have had little instruction in roots of words and are therefore not able to make "guesses" on some of the words which include Greek or Latin roots.

The pamphlet used in the course is TAKING THE SAT: A GUIDE TO THE SCHOLASTIC APTITUDE TEST AND THE TEST OF STANDARD WRITTEN ENGLISH. (College Board)

The following topics, briefly outlined, constitute the major parts of the course:

I. The importance of listening, tuning in (pre-set)

II. The test itself

- A. Directions for each section
- B. Timing: varying difficulty, item value equal, mark (and watch) start and finish time
- C. Method of attack
  1. Best answer vs likely error answers
  2. To guess or not to guess
  3. Noise vs concentration
  4. Answer sheet--check numbers each time

III. Verbal section

- A. Analysis, state relationship
- B. Types of questions
  1. Antonyms
  2. Sentence completion, first or second word
  3. Analogies, doubles

4. Reading comprehension

IV. Math section

A. Standard multiple choice, insight

B. Quantitative comparison

V. Test of Standard Written English

VI. General elements of test preparation

A. Familiarity with grid sheet

B. Importance of results

C. Personal use of data

D. Psych up or out?

E. Re-take possibility

F. Feedback, suggestions

SPRAGUE HIGH SCHOOL (Salem)

The following information was furnished by Judy Allen and Grace LeBlanc, teachers of the course at Sprague High School.

The class is taught only the first quarter each year.

The main textbook used is HOW TO TAKE THE SAT by Marcia Lawrence, Plum Publisher, 1979. Other resources are: BARRON'S COLLEGE ENTRANCE EXAMINATION, BARRON'S MATH WORKBOOK FOR COLLEGE ENTRANCE, CLIFF NOTES ON THE SAT, and 601 WORDS YOU NEED TO KNOW FOR THE SAT.

The textbook is divided into four specific verbal areas of the SAT and the TEST OF STANDARD WRITTEN ENGLISH. Each section is taken separately to review, but students work on vocabulary throughout the quarter. Toward the end of the quarter, a number of verbal tests are given which cover all sections.

The textbook is divided into twelve sections in math which are reviewed separately with practice problems on each topic.

In both the math and verbal groups, techniques for answering questions are emphasized. Also, methods of eliminating questions are discussed so that students can make educated guesses.

A math and English teacher share the class, teaching in alternating blocks. They have found three days for math and three days of

verbal made a better structure than splitting the quarter into two large blocks of time. When the enrollment reached over 70, two classes were formed with two math and two English classes.

A counselor is invited in to answer questions about college information. Students find this session helpful, and the counseling department appreciates the opportunity of talking to an entire group ready to start the process of applying to colleges. College representatives from academically competitive private institutions have also been given an opportunity to speak to the class.

Just before the test date, time is spent in class talking about other survival skills that will help in taking the test. For example, dressing in "layers" in order to adjust to hot or cold rooms, wearing a watch, eating a nutritional breakfast, taking necessary aids--pencil, paper, etc.

CHAPTER X

AVAILABLE MATERIALS

Among the most useful materials available are the test administrator manuals which accompany commercial tests. Educators often overlook this resource, even though manuals in ample quantity are usually readily available. The test administrator's manual usually provides excellent suggestions for preparing students for a specific test.

So many useful materials exist for teaching test taking skills that providing a complete list is very difficult, if not impossible. The following materials are listed only as examples that seem to offer valuable program components. Those available from Jackson Education Service District Instructional Media Center are so indicated.

TEST PREP: A TEACHER'S GUIDE (ETS, Princeton, N. J. 08541)

This publication builds on an earlier manual, HOW TO TAKE A TEST. It includes packets of sample test items with explanations of correct and incorrect responses.

SAT PREPARATION PACKAGE (NAASP)

Multi-media package: workbooks, six video tapes, and computer software. This package is endorsed by the president of ETS.

COMPUTER SAT (Harcourt, Brace Jovanovich, Inc.)

Compatible with the Apple Computer, this material consists of a textbook and computer program disk.

A COUNSELOR'S GUIDE TO HELPING STUDENTS LEARN FROM THE PSAT/NMSQT (The College Board)

This booklet is directed toward someone ready and willing to help students learn from tests: the school counselor.

THE NEXT STEP: A GUIDE TO TEST-TAKING AND TEST USE (ETS)

Intended for teachers of fourth through twelfth grades, this book contains student exercises and information about test taking.

ON YOUR OWN: PREPARING FOR A STANDARDIZED TEST (ETS)

This 25-minute film focuses on multiple-choice tests for admission or licensing. (Sound, color).

TEACHER'S GUIDE: HELPING YOUR STUDENTS BECOME BETTER AT TAKING STANDARDIZED TESTS (ETS)

This publication, available in 1984, is geared primarily for teachers of elementary school students as an introduction to standardized achievement tests.

REPORTING TEST RESULTS (ETS)

An instructional package for elementary and secondary teachers and administrators, this packet includes a slide-tape, instructor's manual, and exercise materials based on the SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS.

USING TESTS (ETS)

A slide-tape, instructor's manual, and exercise materials.

CLIFFS SAT PREPARATION GUIDE (Cliff Notes, Inc., Bobrow Test Preparation Services, Northridge, CA 91325)

A pamphlet with specific suggestions for teaching test taking skills. Also includes information about other available materials: workbooks, films, etc. (Available through Jackson ESD, IMC)

YOUR CHILD AND TESTING (National Institute of Education, U. S. Dept. of Education, Washington, D. C. 20208)

A pamphlet specifically for parents: why test, what should parents know about the different types of tests, what can I do to help, are there legal rights for parents and students on testing, what do test items look like, and what are some other sources of information on testing? (Available through Jackson ESD, IMC)

TEST-TAKING MADE EASIER (Interstate Printers and Publishers, Danville, ILL 61832)

A pamphlet with sections on getting ready in a number of ways (mental, physical, skill areas). (Available through Jackson ESD, IMC)

THE COMPLETE GUIDE TO TAKING TESTS (Prentice-Hall, Inc., Englewood Cliffs, N. J.)

A paperback including chapters on various ways to improve test scores. (Available through Jackson ESD, IMC)

IMPROVING TEST TAKING SKILLS (Riverside Publishing Company, Glendale, CA 91204)

Kits of materials (grades 4 - 6, and 6 - 9) in five skill areas: Following test directions, using time wisely, analytical skills: reading, analytical skills: language, and analytical skills: mathematics. (Kit for 6 - 9 available through Jackson ESD, IMC)

THE SAT: A COLLEGE BOARD PRESENTATION ON TAKING THE SCHOLASTIC APTITUDE TEST (College Board Publications, Dept. E63, Box 886, New York, N. Y. 10101)

A filmstrip/audio tape presentation and manual. (Available through Jackson ESD, IMC)

LET'S TALK ABOUT THE SAT (College Entrance Board, N. Y. 10101)

A film clarifying the nature and purpose of the Scholastic Aptitude Test and how it's used. (Available through Jackson ESD, IMC)

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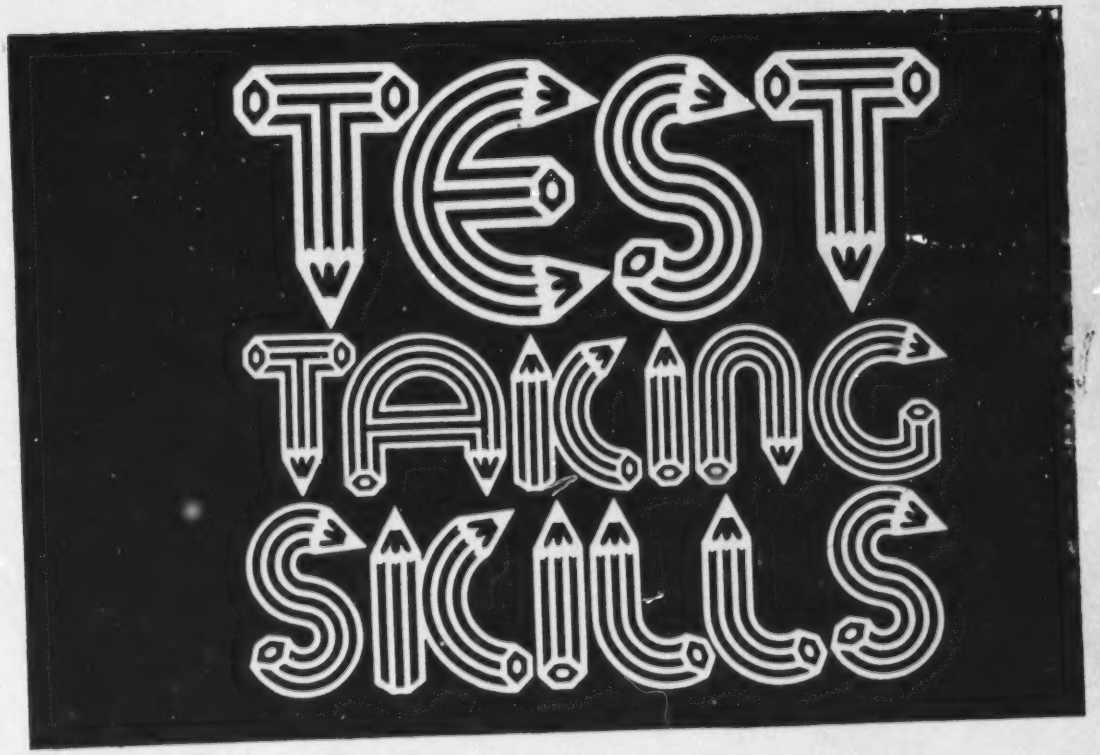
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